

REMARKS

Reconsideration of this application is requested. Claims 1-10 are in the application of which claims 1-8 and 10 are directed to elected subject matter. Claim 9 is withdrawn as non-elected.

Claims 1 and 10 have been amended in order to more particularly point out and distinctly claim that which applicants regard as their invention. Specifically, these claims are amended to more precisely define the word "impregnated" with respect to the foam material.

Responsive to items 1-3 of the Official Action, counsel confirms the election of Group I, namely claims 1-8 and 10. This election was made with traverse and applicants intend to request rejoinder of claim 9 with the rest of the claims once allowable claims have been indicated.

Responsive to item 4 of the Official Action, this application has a U.S. filing date of August 28, 2001 which is well after November 29, 2000 as mentioned in item 4, second paragraph (1). Although not presently an issue, this application is entitled to be examined under 35 USC §102(e) as amended by the AIPA.

Claims 1-4, 6-8 and 10 are rejected as being anticipated by JP 09-309986. A clearer reading of the description and disclosure of the citation will reveal that in no way are applicants' claims anticipated by this document.

Before discussing the deficiencies of the cited documents and evidence countering rejection, it is important to bear in mind the legal requirements for establishing anticipation. To anticipate a claim, a single prior art reference must disclose each and every element of the claimed invention, either explicitly or inherently. *In re Schreiber*, 128 F. 3d 1473, 1477, 33 U.S.P.Q. 2d 1429, 1431 (Fed. Cir. 1997), citing *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 34 U.S.P.Q. 2d 1565 (Fed. Cir. 1995); *Verdegall Bros., Inc. v. Union Oil Co.*, 814 F. 2d 628, 631, 2 U.S.P.Q.2d 1501, 1503 (Fed. Cir. 1987) *cert denied*, 484 U.S. 827 (1987).

It is well settled law that it is the invention as claimed, in its entirety, which must be considered when determining patentability. *Jones v. Hardy*, 727 F.2d 1524, 1530; 220 U.S.P.Q. 1021, 1027 (Fed. Cir. 1984); *In re Hirao and Sato*, 535 F.2d 67, 69, 190 U.S.P.Q. 15, 17 (C.C.P.A. 1976); 35 U.S.C. §103 (mandating consideration of "the subject matter as a whole"). Indeed, in assessing validity, no claim term may be ignored. Instead each and every claim limitation must be given its proper effect. *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Ex parte Grasselli*, 231 U.S.P.Q. 393, 394 (Bd. Pat. App. & Int. 1983).

The Official Action has not demonstrated that each and every element of claims 1-4, 6-8 and 10 are described in the cited document.

The Official Action has not established that the citation describes a thermoplastic substance impregnated and distributed in the cells of a base foam material. In contrast, the particles of thermoplastic resin according to the citation are dispersed in the matrix of a cross-linking rubber. Further, the Official Action has not established that the thermoplastic substance exists at least in the surface layer part of the foam material. Applicants' claims are distinguished from this citation both in terms of its actual structure and the manner in which it is prepared which, in turn, leads to the distinguishing characteristics.

JP 09-309986

The structural distinctions between the present invention and JP 09-309986 are shown in the attached illustrations.

In the structure according to JP 09-309986, particles of the thermoplastic resin are dispersed in the matrix of the cross-linking rubber, and this material is foamed. Therefore, the thermoplastic resin exists on the surfaces of the cells incompletely, that is randomly and only in patches.

On the other hand, in the structure according to the present invention, an ordinary foam member, which is made of rubber, urethane, etc., is impregnated with a thermoplastic material. Therefore, since the thermoplastic material selectively exists only

on the surfaces of the cells, it is assumed that the cells can be easily bonded and the compressed shape can be easily retained.

Further, JP 09-309986 necessitates using a special compound in order to manufacture a foam member and requires purpose-built plants to manufacture such a foam member and compound. However, according to the present invention, a shape memory foam member can be conveniently manufactured using a ready made foam member, so special plants to manufacture the foam member are not required. These advantages are discussed in applicants' specification.

shape
For completion of the record the distinctions between the present invention and JP 09-309986 is discussed below in terms of method.

JP 09-309986 relates to a method for manufacturing a shape memory composition, which is obtained first by mixing cross-linkable rubber and thermoplastic resin. Then a foam member is obtained by foaming the composition. On the other hand, according to the present invention, thermoplastic resin is impregnated into a foam member. Necessarily, the present invention is completely different from JP 09-309986 in terms of the procedure used to obtain a shape memory foam member.

For the above reasons it will be apparent that claims 1-4, 6-8 and 10 as above amended are in no way anticipated by the disclosures of JP 09-309986.

Langer et al (US 6,388,043)

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Original claims 1-8 and 10 have attracted a rejection of anticipation based upon Langer et al US 6,388,043. Again, this document does not describe each and every feature of claims 1-8 and 10 and therefore fails to anticipate the amended claims now under review. The Langer reference uses a shape memory polymer which is distinctly different from the thermoplastic material used in the present invention. Nor does the present invention use a material which has a hard segment and a soft segment. These two features (among others) are quite different from the present invention.

Judging from the following passages of Langer et al, it is apparent that the shape memory polymer requires a hard segment and a soft segment.

(Col. 1, lines 33-35)

(...) *In the literature, SMPs (shape memory polymers) are generally characterized as phase segregated linear block co-polymers having a hard segment and a soft segment.*
(...)

(Col. 4, lines 65-67)

As used herein, the term "segment" refers to a block or sequence of polymer forming part of the shape memory polymer.

Accordingly, Langer et al is completely different from the present invention since the present invention does not use a shape memory polymer, which is distinctly different from the thermoplastic material of the present invention. Further, the present invention does not include a hard segment and a soft segment.

GB 911427

Claims 1-7 and 10 are rejected as either being anticipated by or obvious over the disclosures of GB 911427. Applicants believe that the material disclosed in GB 911427 does not exhibit the shape memory characteristic.

According to the present invention, a foam member is made hard by a thermoplastic material while suppressing an elastic recovery force of a foam member. Then the thermoplastic material is softened by heating and the original thickness is recovered by the elastic recovery force of the foam member. This feature characterizes the present invention.

On the other hand, a shape of a foam member according to GB 911427 cannot be recovered since a thermosetting material is impregnated. Accordingly, the present invention is different from GB 911427.

It has not been established that GB '427 describes a material exhibiting shape memory characteristics. Additionally, the Official Action argues that GB '427 "discloses an article comprising a polyurethane foam and a thermoplastic substance impregnated in the foam and having the melting point lower than that of the foam." While the Official Action refers to the passage at page 1, lines 30-40, counsel is unable to locate adequate description supporting the assertion made in the Official Action. Additionally, the Official Action argues various characteristics of the product of GB '427 are "inherently

present" in the description of the document cited. This is not so. While it is argued that shape recovery, shape memory, density and absorption water co-efficient of the foam "would be inherently present" the record does not establish that such inherency exists nor has the content of the citation been properly applied to the claims now under review. As with the other citations, each and every feature of the claims now under review could not be found in the description of GB '427.

For the above reasons it is respectfully submitted that the claims of this application define inventive subject matter. Reconsideration and allowance are solicited.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version With Markings To Show Changes Made."

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

1. (Amended) A shape memory foam material comprising:
 - a base foam material; and
 - a thermoplastic substance impregnated and distributed in the cells of said base foam material and having a melting point lower than that of said base foam material,
 - wherein said shape memory foam material is a composite material obtained by compressing said base foam material and said thermoplastic substance, and
 - wherein a compressed state of said shape memory foam material is retained in a room temperature by a hardened product of said thermoplastic substance existing at least in the surface layer part thereof, and
 - wherein the compressed state is released by softening said hardened product of said thermoplastic substance by heating.
10. (Amended) A soundproof cover for an automobile engine, comprising a shape memory foam material including:
 - a base foam material; and
 - a thermoplastic substance impregnated and distributed in the cells of said base foam material and having a melting point lower than that of said base foam material,
 - wherein said shape memory foam material is a composite material obtained by compressing said base foam material and said thermoplastic substance, and

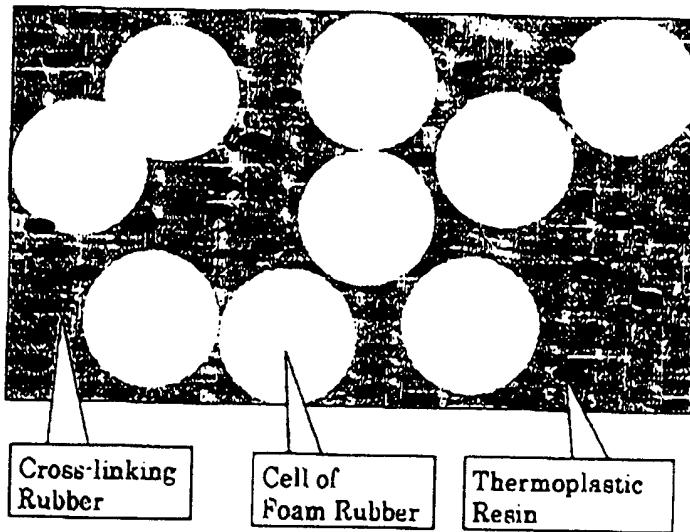
wherein a compressed state of said shape memory foam material is retained in a room temperature by a hardened product of said thermoplastic substance existing at least in the surface layer part thereof, and

wherein the compressed state is released by softening said hardened product of said thermoplastic substance by heating.

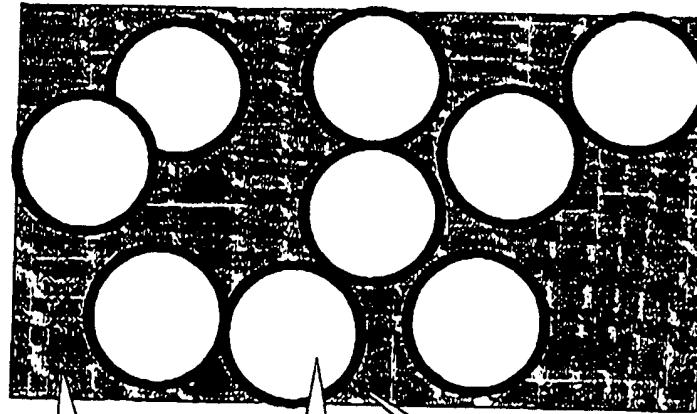
Your Ref. : 249-194
Our Ref. : N11-134845M/SKY

Structural Distinctions
between the Present Invention and JP 09-309986

(1) Structure of JP 09-309986



(2) Structure of the Present Invention



Cross-linking
Rubber,
Urethane etc.

Cell of
Foam Member

Thermoplastic
Resin